

CLAIMS

1. An electrical power transmission line (1), comprising:
  - at least one electrical cable (3);
  - 5 - a conduit (2) of ferromagnetic material enclosing said at least one cable (3) and comprising a base (5) and a cover (6); and
  - electrical contact elements (7) electrically connecting said base (5) and said cover (6), wherein said electrical contact elements (7) are selected from the group consisting of metal fusion joints and
  - 10 resilient members suitable to penetrate said ferromagnetic material.
2. The electrical power transmission line of claim 1, wherein said base (5) and said cover (6) have superimposed portions (5c, 6a) on both sides of said conduit (2), and wherein said electrical contact elements (7) are
- 15 applied to said superimposed portions (5c, 6a).
3. The electrical power transmission line of claim 1, wherein said resilient members (7) are clips provided with portions able to penetrate said ferromagnetic material
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4. The electrical power transmission line of claim 2, wherein said superimposed portions (5c, 6a) are separated by an air gap (g) and said superimposed portions (5c, 6a) have a width (W) that is at least five times greater than the thickness of said air gap (g).
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5. The electrical power transmission line of claim 4, wherein said air gap (g) is at most 3% of the perimeter of the cross section of said conduit (2).
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6. The electrical power transmission line of claim 1, wherein the electrical contact elements (7) have a reciprocal longitudinal distance of at most 50 cm.
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7. The electrical power transmission line of claim 6, wherein said reciprocal longitudinal distance is of at most 25 cm.

- 5        8.     The electrical power transmission line of claim 1, wherein the conduit (2) comprises a plurality of longitudinal sections (4) partially superimposed on each other and each comprising a base portion (5) and a cover portion (6).
9.     The electrical power transmission line of claim 8, wherein said longitudinal sections (4) are electrically coupled to each other.
- 10    10.    The electrical power transmission line of claim 8, wherein the cover portion (6) and the base portion (5) of each of said longitudinal sections (4) are longitudinally shifted from each other.
- 15    11.    The electrical power transmission line of claim 8, wherein said longitudinal sections (4) are superimposed of a length (L) that is at least 25% of the width (W) of said conduit (2).
12.    The electrical power transmission line of claim 1, wherein said ferromagnetic material is steel.
- 20    13.    The electrical power transmission line of claim 1, wherein said at least one cable (3) comprises three cables arranged in a trefoil configuration.
- 25    14.    The electrical power transmission line of claim 8, wherein at least two of said longitudinal sections (4) extend along different directions, wherein said conduit (2) comprises a joining member (8) for joining said two conduit sections (4), and wherein said joining member (8) consists of two parts electrically connected by means of said electrical contact elements (7).
- 30    15.    The electrical power transmission line of claim 8, wherein said base portion (5) has a "U"-shaped cross-section.
- 35    16.    The electrical power transmission line of claim 1, wherein said cover portion (6) is substantially flat.

17. The electrical power transmission line of claim 1, wherein the conduit (2) is placed underground.
- 5 18. The electrical power transmission line of claim 2, wherein a material having a magnetic permeability greater than air is positioned between said superimposed portions (5c, 6a) of said base (5) and said cover (6).
- 10 19. A method for screening the magnetic field generated by an electrical power transmission line comprising at least one electrical cable, said method comprising the steps of:
- placing said electrical cable in a conduit of ferromagnetic material comprising a base and a cover; and
  - providing an electrical connection between said base and said cover having a conductance, per meter of length, of at least 150 Siemens/m.
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20. The method of claim 19, wherein said conductance is of at least 500 Siemens /m.
- 20 21. The method of claim 20, wherein said conductance is of at least 1500 Siemens/m.
- 25 22. The method of claim 19, wherein providing an electrical connection between said base and said cover comprises elastically coupling said base and said cover with material interpenetration.
- 30 23. The method of claim 19, wherein providing an electrical connection between said base and said cover comprises realizing a metal fusion between said base and said cover.
24. The method of claim 19, wherein placing said electrical cable in a conduit comprises superimposing respective lateral portions of said base and said cover, and wherein providing an electrical connection

between said base and said cover comprises electrically coupling said lateral portions.

- 5        25.    The method of claim 24, wherein electrically coupling said lateral portions comprises applying to said lateral portions a plurality of metal resilient clips able to pierce the surface of said lateral portions under their elastic action.
- 10       26.    The method of claim 19, wherein placing said electrical cable in a conduit comprises arranging the base underground, laying down said at least one cable into said base, and leaning the cover onto said base so as to substantially close said conduit.
- 15       27.    The method of claim 19, wherein the conduit comprises a plurality of longitudinal sections and the method comprises electrically coupling said longitudinal sections to each other.